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AD 842837

METEOROLOGICAL DATA REPORT

NIKE-HYDAC STV, SR-076
(10 October 1968)

BY

LEN E. CARTER

ATMOSPHERIC SCIENCES RESEARCH OFFICE
WHITE SANDS MISSILE RANGE, NEW MEXICO

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UNITED STATES ARMY ELECTRONICS COMMAND

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SECTION 3	
SECTION 4	
SECTION 5	
SECTION 6	
SECTION 7	
SECTION 8	
SECTION 9	
SECTION 10	
SECTION 11	
SECTION 12	
SECTION 13	
SECTION 14	
SECTION 15	
SECTION 16	
SECTION 17	
SECTION 18	
SECTION 19	
SECTION 20	
SECTION 21	
SECTION 22	
SECTION 23	
SECTION 24	
SECTION 25	
SECTION 26	
SECTION 27	
SECTION 28	
SECTION 29	
SECTION 30	
SECTION 31	
SECTION 32	
SECTION 33	
SECTION 34	
SECTION 35	
SECTION 36	
SECTION 37	
SECTION 38	
SECTION 39	
SECTION 40	
SECTION 41	
SECTION 42	
SECTION 43	
SECTION 44	
SECTION 45	
SECTION 46	
SECTION 47	
SECTION 48	
SECTION 49	
SECTION 50	
SECTION 51	
SECTION 52	
SECTION 53	
SECTION 54	
SECTION 55	
SECTION 56	
SECTION 57	
SECTION 58	
SECTION 59	
SECTION 60	
SECTION 61	
SECTION 62	
SECTION 63	
SECTION 64	
SECTION 65	
SECTION 66	
SECTION 67	
SECTION 68	
SECTION 69	
SECTION 70	
SECTION 71	
SECTION 72	
SECTION 73	
SECTION 74	
SECTION 75	
SECTION 76	
SECTION 77	
SECTION 78	
SECTION 79	
SECTION 80	
SECTION 81	
SECTION 82	
SECTION 83	
SECTION 84	
SECTION 85	
SECTION 86	
SECTION 87	
SECTION 88	
SECTION 89	
SECTION 90	
SECTION 91	
SECTION 92	
SECTION 93	
SECTION 94	
SECTION 95	
SECTION 96	
SECTION 97	
SECTION 98	
SECTION 99	
SECTION 100	

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METEOROLOGICAL DATA REPORT

NIKE-HYDAC STV, SR-076
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DA Task 1T665702D127-02

ATMOSPHERIC SCIENCES RESEARCH OFFICE
WHITE SANDS MISSILE RANGE, NEW MEXICO

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ABSTRACT

Meteorological data gathered for the launching of Nike-Hydrac STV, SR-076, are presented for the Space and Missile Systems Organization, Greenbelt, Maryland, and for ballistic studies. The data appear, along with calculated ballistic data, in tabular form.

CONTENTS

	PAGE
ABSTRACT -----	111
INTRODUCTION -----	1
DISCUSSION -----	1
TABLES	
I. Theoretical Rocket Performance Values -----	2
II. Ballistic Factors -----	3
III. Anemometer Wind Speed and Direction -----	4
IV. Pilot-Balloon-Measured Wind Data -----	5
V. Rawinsonde-Measured Wind Data -----	6
VI. Significant Level Data (Release Time: 0330 MDT) -----	7
VII. Upper Air Data (Release Time: 0330 MDT) -----	8
VIII. Mandatory Levels (Release Time: 0330 MDT) -----	15
IX. Significant Level Data (Release Time: 0630 MDT) -----	16
X. Upper Air Data (Release Time: 0630 MDT) -----	17
XI. Mandatory Levels (Release Time: 0630 MDT) -----	24
XII. Impact Prediction Data -----	25

INTRODUCTION

Nike-Hydac STV, SR-076, was launched from LC-33, L-314, White Sands Missile Range (WSMR), New Mexico, at 0630 hours MDT, 10 October 1968.

Meteorological data used in conjunction with theoretical calculations to predict rocket impact were collected by the Meteorological Support Technical Area, U. S. Army Electronics Research and Development Activity, WSMR, New Mexico. The Ballistic Meteorologists for this firing were Gordon L. Dunaway and Len E. Carter.

DISCUSSION

Wind data for the first 216 feet above the surface were obtained from a system composed of five Aerovanes mounted on a 200-foot tower and cabled to wind component indicators.

From 216 to 4,000 feet above the surface, wind data were obtained from T-9 Radar-tracked balloon ascents.

Temperature, pressure, and humidity data, along with upper wind data from 4,000 to 100,000 feet above the surface, were obtained from standard rawinsonde observations.

Mean wind component values in each ballistic zone were determined from vertical cross sections by the equal-area method.

Theoretical rocket performance values and wind-weighting values as a function of altitude were provided by the Meteorological Support Technical Area, WSMR, New Mexico, and are the basis for the data appearing in Table I.

PAYLOAD		223	Pounds
CORIOLIS DISPLACEMENT	WEST	4.9	Miles
SECOND-STAGE IGNITION	TIME	20.0	Seconds
	ALTITUDE	35,760	Feet MSL
PEAK	TIME	236	Seconds
	ALTITUDE	716,000	Feet MSL
UNIT WIND EFFECT	HEAD	2.51	Miles/MPH
	CROSS	2.60	Miles/MPH
	TAIL	2.52	Miles/MPH
TOWER TILT EFFECT		14.53	Miles/Degree

TABLE I. THEORETICAL ROCKET PERFORMANCE VALUES
NIKE-HYDAC STV, SR-076

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
15- 60	.126
60- 108	.084
108- 148	.053
148- 184	.041
184- 216	.026
216- 300	.062
300- 400	.058
400- 600	.072
600- 800	.058
800-1000	.039

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
1000- 1400	.063
1400- 2000	.066
2000- 2500	.035
2500- 3000	.028
3000- 3500	.014
3500- 4000	.005
4000- 4160	-.003
4160- 9000	-.014
9000-15000	-.017
15000-21000	-.016

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
21000-26000	-.013
26000-31770	-.016
31770-36000	.129
36000-41000	.057
41000-46000	.026
46000-51000	.015
51000-56000	.010
56000-61000	.006
61000-66000	.004
66000-69330	.002

TABLE II. BALLISTIC FACTORS
NIKE-HYDAC STV, SR-076

AERO- VANE NO. *	MEAN WIND COMPONENTS IN MILES PER HOUR											
	1		2		3		4		5		6	
	0520 MDT		0530 MDT		0545 MDT		0610 MDT		0620 MDT		0630 MDT	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
1	0.0	0.0	2.0S	2.0E	4.0S	8.0E	3.0S	4.0E	3.0S	7.0E	3.0S	6.0E
2	2.0S	0.0	4.0	4.0	7.0	8.0	3.0	10.0	4.0	10.0	10.0	14.0
3	3.0	2.0E	4.0	6.0	6.0	8.0	5.0	13.0	3.0	16.0	8.0	16.0
4	4.0	3.0	5.0	5.0	7.0	8.0	6.0	13.0	4.0	16.0	8.0	16.0
5	4.0	3.0	5.0	5.0	6.0	8.0	6.0	13.0	4.0	16.0	8.0	16.0

TABLE III. ANEMOMETER WIND SPEED AND DIRECTION
NIKE-HYDAC STV, SR-076

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN MILES PER HOUR											
	1		2		3		4		5		6	
	0520 MDT		0530 MDT		0545 MDT		0610 MDT		0620 MDT		0630 MDT	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
216- 300	5.0S	3.5E	5.0S	4.5E	6.0S	7.5E	6.5S	13.0E	4.5S	16.5E	8.5S	16.0E
300- 400	6.5	5.5	5.0	4.0	5.5	7.0	7.0	12.5	5.5	17.0	10.5	16.5
400- 600	9.0	3.5	5.0	2.5	5.0	6.0	8.0	13.5	8.0	17.0	12.5	18.5
600- 800	8.0	2.0	5.5	2.5	4.0	6.0	7.5	10.5	9.5	14.5	13.5	17.5
800-1000	6.0	3.0	6.0	3.5	2.5	6.0	3.0	7.0	5.5	12.0	12.0	15.5
1000-1400	3.0	2.5	6.0	1.0	5.0	5.0	2.5	5.0	2.0	5.5	6.0	6.0
1400-2000	7.0	1.0W	9.5	1.0	10.0	3.0	4.5	1.0	3.5	2.0	4.5	2.0
2000-2500	12.5	2.5E	13.5	2.5	11.5	3.0	10.5	2.0	8.5	2.5	7.0	1.0
2500-3000	18.5	6.0	20.0	6.0	19.0	5.0	16.0	6.5	14.5	5.0	13.0	2.0
3000-3500	16.5	7.5	19.0	6.5	21.0	5.0	17.0	7.0	16.5	4.0	17.0	7.0
3500-4000	16.0	4.5	19.0	0.5	18.0	2.0	16.0	1.5	12.0	2.0	15.0	4.5

TABLE IV. PILOT-BALLOON-MEASURED WIND DATA
NIKE-HYDAC STV, SR-076

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN KNOTS					
	1		2			
	0330 MDT		0630 MDT			
	N-S	E-W	N-S	E-W	N-S	E-W
4000-4160	8.0S	0.0	14.0S	2.5E		
4160-9000	12.0	7.0W	16.0	6.0W		
9000-15000	7.0	19.5	11.0	19.0		
15000-21000	12.5	21.5	13.5	23.5		
21000-26000	10.0	27.0	18.0	31.0		
26000-31770	16.0	44.0	14.0	38.5		
31770-36000	10.0	56.0	10.5	59.0		
36000-41000	9.0	52.0	10.0	56.0		
41000-46000	8.5	47.5	9.0	51.0		
46000-51000	0.0	38.0	0.0	34.0		
51000-56000	3.5N	19.5	6.0N	17.0		
56000-61000	7.5	20.5	2.5	13.0		
61000-66000	6.5S	11.0	5.0S	8.5		
66000-69330	6.0	2.5	4.0	1.5		

TABLE V RAWINSONDE-MEASURED WIND DATA
NIKE-HYDAC STV, SR-076

STATION ALTITUDE 3989.0 FEET MSL
10 OCT. 68
ASCENSION N.J. 823

SIGNIFICANT LEVEL DATA
0658003903
WHITE SANDS SITE
TABLE VI

WSTM SITE CUORDINATES
E 488,580 FEET
N 185,045 FEET

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE		REL. HUM. PERCENT
		AIR DEGREES	DEWPOINT CENTIGRADE	
882.6	3989.0	12.2	6.3	67.0
868.0	4450.1	14.0	6.9	62.0
829.0	5719.7	11.7	4.5	61.0
804.0	6562.8	12.4	3.1	53.0
779.0	7430.4	10.5	0.8	51.0
755.0	8290.2	12.6	0.7	44.0
653.0	12227.8	3.5	-4.9	54.0
629.0	13221.4	0.3	-5.7	64.0
622.0	13517.0	1.3	-19.3	20.0
613.0	13903.2	2.5	-16.6	23.0
514.0	16516.4	-5.1	-22.6	24.0
400.0	24822.5	-19.2	-32.9	29.0
328.0	29581.3	-29.5	-42.3	28.0
284.0	32901.8	-38.6	-49.5	31.0
217.0	38812.9	-52.1	0.	-0. **
162.0	44673.7	-64.4	0.	-0. **
140.0	47796.8	-67.0	0.	-0. **
120.0	50819.5	-73.2	0.	-0. **
105.0	53403.8	-72.4	0.	-0. **
100.0	54353.0	-71.2	0.	-0. **
85.0	56621.4	-72.2	0.	-0. **
84.0	57740.5	-73.6	0.	-0. **
64.0	63138.2	-62.0	0.	-0. **
35.0	75643.6	-55.8	0.	-0. **
27.0	81121.3	-54.5	0.	-0. **
24.5	83191.2	-52.0	0.	-0. **
20.0	87531.1	-52.9	0.	-0. **
13.5	96031.1	-47.2	0.	-0. **

** RELATIVE HUMIDITY NOT SUPPLIED. ZERO VALUE ASSUMED FOR COMPUTATIONS.

STATION ALTITUDE 3989.0 FEET MSL

10 OCT. 68

ASCENSION NJ. 823

UPPER AIR DATA

06580003903

WHITE SANDS SITE

WSTM SITE COORDINATES

E 488,580 FEET

N 185,045 FEET

TABLE VII

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
3989.0	882.6	12.2	6.3	67.0	1073.3	659.1	210.0	210.0	1.9	1.000283
4000.0	882.2	12.2	6.3	66.9	1072.7	659.1	209.7	209.7	2.0	1.000283
4500.0	866.4	13.9	6.8	62.0	1047.1	661.1	197.4	197.4	4.6	1.000279
5000.0	850.9	13.0	5.8	61.6	1031.8	660.0	185.0	185.0	7.2	1.000273
5500.0	835.6	12.1	4.9	61.2	1016.7	658.9	172.7	172.7	9.8	1.000267
6000.0	820.6	11.9	4.1	58.3	999.1	658.7	160.4	160.4	12.4	1.000261
6500.0	805.8	12.3	3.2	53.6	979.9	659.1	161.2	161.2	12.0	1.000254
7000.0	791.3	11.4	2.0	52.0	965.5	658.0	166.1	166.1	11.3	1.000248
7500.0	777.0	10.7	0.8	50.4	950.9	657.0	178.7	178.7	10.1	1.000242
8000.0	763.0	11.9	0.8	46.4	929.7	658.4	188.2	188.2	9.5	1.000237
8500.0	749.2	12.1	0.4	44.5	912.1	658.7	195.7	195.7	9.2	1.000232
9000.0	735.5	11.0	-0.3	45.8	899.2	657.3	204.2	204.2	10.3	1.000228
9500.0	722.1	9.8	-0.9	47.1	886.5	656.0	212.0	212.0	11.4	1.000225
10000.0	708.9	8.6	-1.6	48.3	873.9	654.6	213.3	213.3	12.4	1.000221
10500.0	695.9	7.5	-2.4	49.6	861.6	653.2	215.1	215.1	13.1	1.000217
11000.0	683.2	6.3	-3.1	50.9	849.4	651.8	217.9	217.9	13.6	1.000213
11500.0	670.8	5.2	-3.8	52.2	837.5	650.5	221.3	221.3	14.4	1.000209
12000.0	658.5	4.0	-4.6	53.4	825.7	649.1	225.1	225.1	15.4	1.000205
12500.0	646.3	2.6	-5.1	56.7	814.6	647.4	231.9	231.9	16.9	1.000202
13000.0	634.3	1.0	-5.5	61.8	804.1	645.5	237.5	237.5	18.2	1.000200
13500.0	622.4	1.2	-17.9	22.5	789.6	645.3	240.9	240.9	19.3	1.000183
14000.0	610.7	2.3	-16.7	23.0	771.6	646.6	243.3	243.3	20.0	1.000180
14500.0	599.2	1.5	-17.4	23.1	759.3	645.6	245.3	245.3	20.4	1.000177
15000.0	587.9	0.7	-18.0	23.2	747.2	644.7	245.8	245.8	20.7	1.000174
15500.0	576.7	-0.1	-18.7	23.3	735.3	643.7	246.0	246.0	21.0	1.000171
16000.0	565.8	-1.0	-19.3	23.5	723.6	642.7	244.7	244.7	21.4	1.000168
16500.0	555.1	-1.8	-20.0	23.6	712.1	641.7	243.7	243.7	22.0	1.000165
17000.0	544.6	-2.6	-20.6	23.7	700.8	640.7	243.5	243.5	22.8	1.000162
17500.0	534.3	-3.4	-21.3	23.8	689.7	639.7	242.6	242.6	23.4	1.000159
18000.0	524.2	-4.2	-21.9	23.9	678.7	638.8	241.1	241.1	23.9	1.000157

STATION ALTITUDE 3989.0 FEET MSL

10 OCT. 68

ASCENSION NO. 823

UPPER AIR DATA

06580003903

WHITE SANDS SITE

WSTM SITE COORDINATES

E 488,580 FEET

N 185,045 FEET

TABLE VII (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DIRECTION DEGREES(TN)	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNUTS	KNUTS		SPEED KNOTS	KNOTS	
18500.0	514.3	-5.1	-22.6	24.0	668.0	637.8		240.5	24.3		1.000154
19000.0	504.2	-6.2	-23.4	24.4	657.6	636.4		240.3	24.5		1.000151
19500.0	494.3	-7.3	-24.1	24.8	647.4	635.1		240.6	24.7		1.000149
20000.0	484.6	-8.4	-24.9	25.2	637.3	633.7		240.9	24.9		1.000146
20500.0	475.0	-9.5	-25.7	25.6	627.4	632.4		241.1	25.6		1.000144
21000.0	465.7	-10.7	-26.5	26.0	617.7	631.0		240.9	26.1		1.000141
21500.0	456.5	-11.8	-27.3	26.4	608.2	629.7		240.4	26.4		1.000139
22000.0	447.5	-12.9	-28.2	26.8	598.8	628.3		239.3	26.4		1.000137
22500.0	438.7	-14.0	-29.0	27.2	589.5	627.0		238.0	26.3		1.000134
23000.0	430.1	-15.1	-29.8	27.6	580.5	625.6		237.9	25.9		1.000132
23500.0	421.6	-16.2	-30.6	28.0	571.5	624.2		237.9	25.4		1.000130
24000.0	413.3	-17.4	-31.5	28.3	562.7	622.9		238.3	25.6		1.000128
24500.0	405.2	-18.5	-32.3	28.7	554.1	621.5		238.7	25.9		1.000126
25000.0	397.0	-19.6	-33.2	29.0	545.4	620.1		240.2	26.2		1.000124
25500.0	388.9	-20.7	-34.2	28.9	536.4	618.8		241.8	26.5		1.000121
26000.0	380.8	-21.7	-35.2	28.8	527.6	617.5		243.6	27.1		1.000119
26500.0	373.0	-22.8	-36.2	28.6	519.0	616.1		245.4	27.7		1.000117
27000.0	365.3	-23.9	-37.2	28.5	510.5	614.8		247.5	28.3		1.000115
27500.0	357.7	-25.0	-38.2	28.4	502.2	613.5		249.6	29.0		1.000113
28000.0	350.4	-26.1	-39.2	28.3	494.0	612.1		250.8	31.1		1.000111
28500.0	343.1	-27.2	-40.2	28.2	485.9	610.8		252.1	33.1		1.000109
29000.0	336.0	-28.2	-41.2	28.1	478.0	609.4		252.9	34.8		1.000107
29500.0	329.1	-29.3	-42.2	28.0	470.2	608.1		253.7	36.5		1.000106
30000.0	322.1	-30.6	-43.2	28.4	462.7	606.4		253.9	37.5		1.000104
30500.0	315.2	-32.0	-44.3	28.8	455.4	604.7		254.0	38.4		1.000102
31000.0	308.4	-33.4	-45.4	29.3	448.1	603.0		254.1	38.6		1.000100
31500.0	301.8	-34.8	-46.5	29.7	441.0	601.2		254.4	38.6		1.000099
32000.0	295.3	-36.1	-47.6	30.2	434.1	599.5		254.8	38.5		1.000097
32500.0	289.0	-37.5	-48.7	30.6	427.2	597.8		255.3	39.8		1.000096
33000.0	282.7	-38.8	-49.9	30.5**	420.4	596.1		255.8	42.2		1.000094

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
10 OCT. 68
ASCENSION NO. 823

UPPER AIR DATA
0658003903
WHITE SANDS SITE

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

TABLE VII (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
33500.0	276.4	-40.0	-51.7	27.9**	412.9	594.6	256.4	256.4	44.4	1.000092
34000.0	270.2	-41.1	-53.5	25.2**	405.6	593.2	257.1	257.1	46.4	1.000091
34500.0	264.1	-42.3	-55.4	22.6**	398.5	591.7	256.8	256.8	48.7	1.000089
35000.0	258.1	-43.4	-57.4	20.0**	391.4	590.2	256.6	256.6	51.0	1.000087
35500.0	252.3	-44.5	-59.5	17.4**	384.5	588.8	256.4	256.4	53.7	1.000086
36000.0	246.6	-45.7	-61.7	14.8**	377.8	587.3	256.2	256.2	56.2	1.000084
36500.0	241.1	-46.8	-64.1	12.1**	371.1	585.8	255.9	255.9	58.1	1.000083
37000.0	235.7	-48.0	-66.8	9.5**	364.6	584.3	255.6	255.6	59.9	1.000081
37500.0	230.4	-49.1	-70.0	6.9**	358.2	582.8	255.3	255.3	61.1	1.000080
38000.0	225.2	-50.2	-74.1	4.3**	352.0	581.3	255.1	255.1	62.1	1.000078
38500.0	220.1	-51.4	-81.0	1.6**	345.8	579.9	255.5	255.5	60.0	1.000077
39000.0	215.1	-52.5	0.	-0. **	339.5	578.4	256.0	256.0	57.9	1.000076
39500.0	209.9	-53.5	0.	-0. **	333.0	577.1	256.9	256.9	57.5	1.000074
40000.0	204.9	-54.5	0.	-0. **	326.6	575.8	257.7	257.7	57.1	1.000073
40500.0	200.0	-55.5	0.	-0. **	320.3	574.4	258.3	258.3	57.8	1.000071
41000.0	195.3	-56.5	0.	-0. **	314.1	573.1	258.8	258.8	58.1	1.000070
41500.0	190.6	-57.6	0.	-0. **	308.1	571.7	259.5	259.5	56.7	1.000069
42000.0	186.1	-58.6	0.	-0. **	302.1	570.4	260.1	260.1	55.0	1.000067
42500.0	181.6	-59.6	0.	-0. **	296.3	569.0	260.7	260.7	52.5	1.000066
43000.0	177.3	-60.6	0.	-0. **	290.7	567.7	260.8	260.8	50.6	1.000065
43500.0	173.1	-61.6	0.	-0. **	285.1	566.3	259.7	259.7	50.4	1.000063
44000.0	169.0	-62.6	0.	-0. **	279.6	565.0	258.7	258.7	50.1	1.000062
44500.0	164.9	-63.6	0.	-0. **	274.3	563.6	258.0	258.0	49.5	1.000061
45000.0	161.0	-64.5	0.	-0. **	268.8	562.4	257.0	257.0	49.5	1.000060
45500.0	157.0	-65.0	0.	-0. **	262.8	561.8	255.4	255.4	51.9	1.000059
46000.0	153.1	-65.4	0.	-0. **	256.8	561.2	253.8	253.8	54.3	1.000057
46500.0	149.4	-65.8	0.	-0. **	251.0	560.6	254.0	254.0	50.4	1.000056
47000.0	145.7	-66.3	0.	-0. **	245.4	560.0	254.2	254.2	46.4	1.000055
47500.0	142.1	-66.7	0.	-0. **	239.8	559.4	254.9	254.9	45.5	1.000053
48000.0	138.6	-67.4	0.	-0. **	234.6	558.5	255.6	255.6	45.4	1.000052

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
10 OCT. 68 0330 HRS MDT
ASCENSION NO. 823

UPPER AIR DATA
0658003903
WHITE SANDS SITE

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

TABLE VII (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
63500.0	62.9	-61.8	0.	-0.	103.7	566.0		277.5	10.0	1.000023
64000.0	61.4	-61.6	0.	-0.	101.1	566.4		257.7	9.3	1.000023
64500.0	59.9	-61.3	0.	-0.	98.6	566.7		244.7	9.5	1.000022
65000.0	58.5	-61.1	0.	-0.	96.1	567.0		231.8	9.6	1.000021
65500.0	57.1	-60.8	0.	-0.	93.7	567.4		229.7	9.9	1.000021
66000.0	55.7	-60.6	0.	-0.	91.4	567.7		233.1	10.3	1.000020
66500.0	54.4	-60.3	0.	-0.	89.1	568.0		235.3	10.7	1.000020
67000.0	53.1	-60.1	0.	-0.	86.9	568.4		233.9	11.3	1.000019
67500.0	51.9	-59.8	0.	-0.	84.7	568.7		232.5	11.9	1.000019
68000.0	50.6	-59.6	0.	-0.	82.6	569.0		232.5	12.3	1.000018
68500.0	49.4	-59.3	0.	-0.	80.5	569.4		232.9	12.6	1.000018
69000.0	48.2	-59.1	0.	-0.	78.5	569.7		232.8	12.0	1.000017
69500.0	47.1	-58.8	0.	-0.	76.5	570.0		231.3	9.0	1.000017
70000.0	46.0	-58.6	0.	-0.	74.6	570.3		229.8	6.1	1.000017
70500.0	44.9	-58.4	0.	-0.	72.8	570.7		266.2	4.4	1.000016
71000.0	43.8	-58.1	0.	-0.	71.0	571.0		316.0	3.2	1.000016
71500.0	42.7	-57.9	0.	-0.	69.2	571.3		359.9	2.2	1.000015
72000.0	41.7	-57.6	0.	-0.	67.5	571.7		20.2	2.3	1.000015
72500.0	40.7	-57.4	0.	-0.	65.8	572.0		40.6	2.5	1.000015
73000.0	39.8	-57.1	0.	-0.	64.1	572.3		90.9	2.3	1.000014
73500.0	38.8	-56.9	0.	-0.	62.5	572.6		156.9	2.0	1.000014
74000.0	37.9	-56.6	0.	-0.	61.0	573.0		212.0	1.9	1.000014
74500.0	37.0	-56.4	0.	-0.	59.4	573.3		187.0	3.3	1.000013
75000.0	36.1	-56.1	0.	-0.	58.0	573.6		162.0	4.8	1.000013
75500.0	35.2	-55.9	0.	-0.	56.5	574.0		153.9	5.3	1.000013
76000.0	34.4	-55.7	0.	-0.	55.1	574.2		158.3	5.3	1.000012
76500.0	33.6	-55.6	0.	-0.	53.8	574.3		162.7	5.3	1.000012
77000.0	32.8	-55.5	0.	-0.	52.5	574.5		165.0	5.7	1.000012
77500.0	32.1	-55.4	0.	-0.	51.3	574.6		167.2	6.2	1.000011
78000.0	31.3	-55.2	0.	-0.	50.1	574.8		165.3	5.8	1.000011

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
10 OCT. 68 0330 HRS MDT
ASCENSION NO. 823

UPPER AIR DATA
0658003903
WHITE SANDS SITE

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

TABLE VII (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE				DIRECTION DEGREES(TN)	SPEED KNOTS	
78500.0	30.6	-55.1	0.	-0. **	48.9	574.9	158.4	4.6	1.000011
79000.0	29.9	-55.0	0.	-0. **	47.7	575.1	151.4	3.3	1.000011
79500.0	29.2	-54.9	0.	-0. **	46.5	575.3	142.4	2.5	1.000010
80000.0	28.5	-54.8	0.	-0. **	45.4	575.4	133.2	1.8	1.000010
80500.0	27.8	-54.6	0.	-0. **	44.3	575.6	122.0	2.1	1.000010
81000.0	27.2	-54.5	0.	-0. **	43.3	575.7	107.2	4.3	1.000010
81500.0	26.5	-54.0	0.	-0. **	42.2	576.4	92.3	6.5	1.000009
82000.0	25.9	-53.4	0.	-0. **	41.1	577.2	88.3	7.4	1.000009
82500.0	25.3	-52.8	0.	-0. **	40.0	578.0	86.9	8.0	1.000009
83000.0	24.7	-52.2	0.	-0. **	39.0	578.7	85.4	8.9	1.000009
83500.0	24.1	-52.1	0.	-0. **	38.1	579.0	83.3	10.8	1.000008
84000.0	23.6	-52.2	0.	-0. **	37.2	578.8	81.3	12.7	1.000008
84500.0	23.0	-52.3	0.	-0. **	36.4	578.7	81.5	13.5	1.000008
85000.0	22.5	-52.4	0.	-0. **	35.5	578.6	83.0	13.7	1.000008
85500.0	22.0	-52.5	0.	-0. **	34.7	578.4	85.2	13.8	1.000008
86000.0	21.5	-52.6	0.	-0. **	33.9	578.3	97.4	13.0	1.000008
86500.0	21.0	-52.7	0.	-0. **	33.2	578.2	109.6	12.1	1.000007
87000.0	20.5	-52.8	0.	-0. **	32.4	578.0	114.0	12.5	1.000007
87500.0	20.0	-52.9	0.	-0. **	31.7	577.9	110.6	14.0	1.000007
88000.0	19.6	-52.6	0.	-0. **	30.9	578.3	107.2	15.5	1.000007
88500.0	19.1	-52.3	0.	-0. **	30.2	578.7	103.1	15.2	1.000007
89000.0	18.7	-51.9	0.	-0. **	29.4	579.2	98.9	14.7	1.000007
89500.0	18.3	-51.6	0.	-0. **	28.7	579.6	95.2	14.1	1.000006
90000.0	17.8	-51.2	0.	-0. **	28.0	580.0	93.0	13.3	1.000006
90500.0	17.4	-50.9	0.	-0. **	27.3	580.5	90.7	12.5	1.000006
91000.0	17.0	-50.6	0.	-0. **	26.7	580.9	96.2	11.3	1.000006
91500.0	16.6	-50.2	0.	-0. **	26.0	581.4	106.3	9.9	1.000006
92000.0	16.3	-49.9	0.	-0. **	25.4	581.8	116.3	8.4	1.000006
92500.0	15.9	-49.6	0.	-0. **	24.8	582.2			1.000006
93000.0	15.5	-49.2	0.	-0. **	24.2	582.7			1.000005

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
 10 OCT. 68 0330 HRS MDT
 ASCENSION NJ. 823

UPPER AIR DATA
 0658003903
 WHITE SANDS SITE

WSTM SITE COORDINATES
 E 488,580 FEET
 N 185,045 FEET

TABLE VII (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MLLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	SPEED KNOTS	INDEX OF REFRACTION
93500.0	15.2	-48.9	0.	-0. **	23.6	583.1			1.000005
94000.0	14.8	-48.6	0.	-0. **	23.0	583.5			1.000005
94500.0	14.5	-48.2	0.	-0. **	22.4	584.0			1.000005
95000.0	14.2	-47.9	0.	-0. **	21.9	584.4			1.000005
95500.0	13.8	-47.6	0.	-0. **	21.4	584.8			1.000005
96000.0	13.5	-47.2	0.	-0. **	20.8	585.3			1.000005

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
 10 OCT. 68
 ASCENSION NJ. 823

MANDATORY LEVELS
 0658003903
 WHITE SANDS SITE

WSTM SITE COORDINATES
 E 488,580 FEET
 N 185,045 FEET

TABLE VIII

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	5029.	13.0	5.8	62.	184.3	7.4
800.0	6697.	12.1	2.8	53.	162.0	11.8
750.0	8469.	12.2	0.5	44.	195.3	9.2
700.0	10352.	7.9	-2.1	49.	214.4	13.0
650.0	12342.	3.1	-5.0	55.	229.9	16.4
600.0	14459.	1.6	-17.3	23.	245.2	20.4
550.0	16743.	-2.2	-20.3	24.	243.6	22.4
500.0	19207.	-6.7	-23.7	25.	240.4	24.6
450.0	21877.	-12.6	-27.9	27.	239.6	26.4
400.0	24791.	-19.2	-32.9	29.	239.6	26.0
350.0	28006.	-26.1	-39.2	28.	251.0	31.2
300.0	31602.	-35.1	-46.8	30.	254.5	38.6
250.0	35682.	-45.0	-60.4	16.**	256.3	55.0
200.0	40457.	-55.5	0.	-0.**	258.3	57.9
175.0	43213.	-61.2	0.	-0.**	260.1	50.5
150.0	46313.	-65.8	0.	-0.**	254.0	51.0
125.0	49904.	-71.6	0.	-0.**	259.1	45.5
100.0	54207.	-71.2	0.	-0.**	269.2	32.8
80.0	58516.	-71.5	0.	-0.**	290.6	16.9
70.0	61140.	-65.8	0.	-0.**	319.2	16.6
60.0	64253.	-61.3	0.	-0.**	246.0	9.4
50.0	67981.	-59.5	0.	-0.**	232.7	12.4
40.0	72588.	-57.2	0.	-0.**	69.9	2.4
30.0	78593.	-55.0	0.	-0.**	152.9	3.6
25.0	82429.	-52.5	0.	-0.**	86.2	8.3
20.0	87162.	-52.9	0.	-0.**	110.4	14.1
15.0	93309.	-48.7	0.	-0.**		

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
10 OCT. 68 0630 HRS MDT
ASCENSION NO. 824

SIGNIFICANT LEVEL DATA
0668003906
WHITE SANDS SITE

WSTN SITE COORDINATES
E 488,520 FEET
N 185,045 FEET

TABLE IX

PRESSURE GEOMETRIC ALTITUDE		TEMPERATURE		REL. HUM. PERCENT
MILLIBARS	MSL FEET	AIR DEGREES	DEWPOINT CENTIGRADE	
882.6	3989.0	12.0	4.8	61.0
866.0	4513.5	14.0	5.7	57.0
786.0	7184.2	10.5	3.6	62.0
774.0	7605.9	10.9	3.2	59.0
766.0	7891.9	13.0	2.6	49.0
690.0	10758.6	9.4	-5.3	35.0
612.0	13978.5	1.1	-11.4	39.0
602.0	14413.4	0.5	-21.8	17.0
572.0	15759.4	-0.1	-21.6	18.0
523.0	18095.3	-4.7	-25.5	18.0
356.0	27677.4	-24.4	-42.0	18.0
299.0	31770.4	-35.2	-49.1	23.0
224.0	38193.4	-49.8	0.	-0. **
185.0	42228.8	-59.2	0.	-0. **
180.0	42794.6	-59.2	0.	-0. **
149.0	46634.0	-66.2	0.	-0. **
141.0	47737.8	-65.8	0.	-0. **
116.0	51587.4	-72.0	0.	-0. **
100.0	54491.6	-69.2	0.	-0. **
83.0	58138.5	-72.0	0.	-0. **
63.0	63623.3	-62.7	0.	-0. **
37.0	74656.6	-54.9	0.	-0. **
12.5	98065.0	-45.8	0.	-0. **
8.0	108016.3	-40.9	0.	-0. **

** RELATIVE HUMIDITY NOT SUPPLIED. ZERO VALUE ASSUMED FOR COMPUTATIONS.

STATION ALTITUDE 3989.0 FEET MSL

10 OCT. 68

ASCENSION NO. 824

UPPER AIR DATA

0668003906

WHITE SANDS SITE

TABLE X

WSTM SITE COORDINATES

E 488,580 FEET

N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE				DIRECTION DEGREES(TN)	SPEED KNOTS	
3989.0	882.6	12.0	4.8	61.0	1074.5	658.7	100.0	6.0	1.000279
4000.0	882.2	12.0	4.8	60.9	1073.9	658.8	100.3	6.0	1.000279
4500.0	866.4	13.9	5.6	57.1	1047.3	661.1	113.5	6.5	1.000275
5000.0	850.8	13.4	5.3	57.9	1030.6	660.4	126.7	7.0	1.000271
5500.0	835.5	12.7	4.9	58.8	1014.4	659.6	139.8	7.5	1.000266
6000.0	820.5	12.1	4.5	59.8	998.5	658.9	153.0	7.9	1.000262
6500.0	805.8	11.4	4.1	60.7	982.8	658.1	163.5	8.7	1.000257
7000.0	791.3	10.7	3.7	61.7	967.4	657.3	172.7	9.7	1.000253
7500.0	777.0	10.8	3.3	59.8	949.8	657.4	175.7	11.3	1.000248
8000.0	763.0	12.9	2.3	48.5	926.1	659.7	178.1	13.0	1.000240
8500.0	749.2	12.2	1.0	46.0	911.7	658.9	181.9	14.2	1.000234
9000.0	735.7	11.6	-0.3	43.6	897.4	658.1	185.9	15.4	1.000228
9500.0	722.4	11.0	-1.7	41.1	883.3	657.3	190.1	16.3	1.000222
10000.0	709.3	10.4	-3.1	38.7	869.5	656.5	194.4	17.0	1.000217
10500.0	696.5	9.7	-4.5	36.3	855.9	655.7	199.3	17.0	1.000211
11000.0	683.8	8.8	-5.7	35.3	843.2	654.5	204.6	17.2	1.000207
11500.0	671.2	7.5	-6.7	35.9	831.6	653.0	210.8	17.6	1.000203
12000.0	658.8	6.2	-7.6	36.5	820.1	651.4	217.1	18.6	1.000200
12500.0	646.7	4.9	-8.5	37.2	808.7	649.9	223.5	20.1	1.000196
13000.0	634.7	3.6	-9.5	37.8	797.6	648.4	228.0	22.3	1.000192
13500.0	623.0	2.3	-10.4	38.4	786.6	646.8	232.1	24.5	1.000189
14000.0	611.5	1.1	-11.7	37.9	775.8	645.3	235.0	25.5	1.000185
14500.0	600.0	0.5	-21.8	17.1	763.6	644.3	236.8	25.8	1.000176
15000.0	588.7	0.2	-21.7	17.4	749.8	644.0	237.1	25.1	1.000172
15500.0	577.7	0.0	-21.7	17.8	736.3	643.8	235.9	23.7	1.000170
16000.0	566.7	-0.6	-22.0	18.0	723.9	643.1	234.0	21.9	1.000167
16500.0	556.0	-1.6	-22.9	18.0	712.8	641.9	232.0	21.6	1.000164
17000.0	545.4	-2.5	-23.7	18.0	701.8	640.7	230.1	21.4	1.000161
17500.0	535.1	-3.5	-24.5	18.0	691.0	639.6	229.3	21.4	1.000158
18000.0	524.9	-4.5	-25.3	18.0	680.4	638.4	229.4	21.5	1.000156

STATION ALTITUDE 3989.0 FEET MSL
10 OCT. 68 0630 HRS MDT
ASCENSION NO. 824

UPPER AIR DATA
0668003906
WHITE SANDS SITE

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

TABLE X (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE				DIRECTION DEGREES(TN)	SPEED KNOTS	
18500.0	514.6	-5.5	-26.2	18.0	669.6	697.2	231.6	21.6	1.000153
19000.0	504.3	-6.6	-27.0	18.0	658.8	695.9	233.5	21.7	1.000150
19500.0	494.3	-7.6	-27.9	18.0	648.2	694.7	235.0	21.6	1.000148
20000.0	484.5	-8.6	-28.8	18.0	637.9	693.4	236.5	22.3	1.000145
20500.0	474.9	-9.6	-29.6	18.0	627.6	692.2	238.0	23.3	1.000143
21000.0	465.4	-10.7	-30.5	18.0	617.6	691.0	238.0	24.6	1.000140
21500.0	456.2	-11.7	-31.3	18.0	607.7	629.7	237.6	26.0	1.000138
22000.0	447.1	-12.7	-32.2	18.0	598.0	628.5	237.2	27.4	1.000135
22500.0	438.2	-13.8	-33.1	18.0	588.4	627.2	236.9	28.7	1.000133
23000.0	429.5	-14.8	-33.9	18.0	579.1	626.0	237.6	28.9	1.000131
23500.0	421.0	-15.8	-34.8	18.0	569.8	624.7	238.2	29.1	1.000129
24000.0	412.6	-16.8	-35.7	18.0	560.0	623.5	237.6	30.1	1.000127
24500.0	404.4	-17.9	-36.5	18.0	551.0	622.2	237.0	31.1	1.000124
25000.0	396.4	-18.9	-37.4	18.0	543.1	620.9	236.2	31.7	1.000122
25500.0	388.5	-19.9	-38.3	18.0	534.4	619.7	235.3	32.3	1.000120
26000.0	380.8	-21.0	-39.1	18.0	526.0	618.4	235.2	33.2	1.000118
26500.0	373.2	-22.0	-40.0	18.0	517.6	617.2	235.2	34.2	1.000116
27000.0	365.8	-23.0	-40.9	18.0	509.4	615.9	236.4	35.1	1.000115
27500.0	358.5	-24.0	-41.7	18.0	501.4	614.6	237.7	36.1	1.000113
28000.0	351.1	-25.3	-42.6	18.4	493.4	613.1	240.4	37.4	1.000111
28500.0	343.7	-26.6	-43.4	19.0	485.6	611.5	242.9	38.8	1.000109
29000.0	336.5	-27.9	-44.2	19.6	477.9	609.8	243.3	41.1	1.000107
29500.0	329.4	-29.2	-45.1	20.2	470.4	608.2	243.9	43.0	1.000105
30000.0	322.4	-30.5	-45.9	20.8	463.0	606.5	245.2	42.2	1.000104
30500.0	315.6	-31.8	-46.8	21.4	455.7	604.9	246.2	41.5	1.000102
31000.0	309.0	-33.2	-47.7	22.1	448.5	603.2	245.0	41.9	1.000100
31500.0	302.5	-34.5	-48.6	22.7	441.5	601.5	243.9	42.3	1.000099
32000.0	295.9	-35.7	-49.9	22.2**	434.2	600.0	244.8	42.4	1.000097
32500.0	289.4	-36.9	-51.6	20.4**	426.6	598.6	245.8	42.5	1.000095
33000.0	282.9	-38.0	-53.3	18.0**	419.2	597.1	246.2	44.5	1.000094

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
10 OCT. 68 0630 HRS NDT
ASCENSION NO. 824

UPPER AIR DATA
0608003906
WHITE SANDS SITE

WSTM SITE COORDINATES
E 488,500 FEET
N 189,045 FEET

TABLE X (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	WIND DATA		INDEX OF REFRACTION	
		AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE			DIRECTION DEGREES(TN)	SPEED KNOTS		
33500.0	276.6	-39.1	-55.1	16.8**	411.8	595.7	246.5	47.3	1.000092
34000.0	270.5	-40.3	-57.0	15.0**	404.6	594.2	247.7	49.4	1.000090
34500.0	264.5	-41.4	-59.0	13.2**	397.6	592.8	249.7	51.1	1.000089
35000.0	258.6	-42.5	-61.0	11.4**	390.7	591.3	251.0	53.0	1.000087
35500.0	252.8	-43.7	-63.3	9.6**	383.9	589.8	250.8	55.1	1.000086
36000.0	247.2	-44.8	-65.7	7.9**	377.2	588.4	250.6	57.4	1.000084
36500.0	241.7	-46.0	-68.4	6.1**	370.7	586.9	250.7	59.0	1.000083
37000.0	236.3	-47.1	-71.7	4.3**	364.3	585.4	250.0	60.5	1.000081
37500.0	231.1	-48.2	-76.1	2.5**	358.0	584.0	251.7	60.5	1.000080
38000.0	226.0	-49.4	-84.6	0.7**	351.8	582.5	252.5	60.4	1.000078
38500.0	220.8	-50.5	0.	-0.0**	345.5	581.0	253.1	60.8	1.000077
39000.0	215.6	-51.7	0.	-0.0**	339.2	579.5	253.7	61.3	1.000076
39500.0	210.5	-52.8	0.	-0.0**	333.0	577.9	254.3	60.5	1.000074
40000.0	205.6	-54.0	0.	-0.0**	326.9	576.4	254.9	59.6	1.000073
40500.0	200.8	-55.2	0.	-0.0**	321.0	574.9	253.1	61.6	1.000071
41000.0	196.1	-56.3	0.	-0.0**	315.1	573.3	250.9	64.1	1.000070
41500.0	191.5	-57.5	0.	-0.0**	309.4	571.8	251.5	62.9	1.000069
42000.0	187.0	-58.7	0.	-0.0**	303.8	570.3	252.7	60.9	1.000068
42500.0	182.6	-59.2	0.	-0.0**	297.3	569.5	253.2	59.3	1.000066
43000.0	178.2	-59.6	0.	-0.0**	290.7	569.0	253.5	57.8	1.000065
43500.0	173.9	-60.5	0.	-0.0**	284.8	567.8	254.6	56.3	1.000063
44000.0	169.6	-61.4	0.	-0.0**	279.1	566.6	256.1	54.9	1.000062
44500.0	165.5	-62.3	0.	-0.0**	273.5	565.4	257.3	53.5	1.000061
45000.0	161.5	-63.2	0.	-0.0**	268.0	564.2	255.6	52.5	1.000060
45500.0	157.6	-64.1	0.	-0.0**	262.6	562.9	253.9	51.4	1.000058
46000.0	153.7	-65.0	0.	-0.0**	257.4	561.7	253.6	51.8	1.000057
46500.0	150.0	-66.0	0.	-0.0**	252.2	560.5	254.1	52.9	1.000056
47000.0	146.3	-66.1	0.	-0.0**	246.1	560.3	254.6	53.8	1.000055
47500.0	142.7	-65.9	0.	-0.0**	239.9	560.6	255.2	51.6	1.000053
48000.0	139.1	-66.2	0.	-0.0**	234.3	560.1	255.8	49.5	1.000052

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
10 OCT. 68 0630 HRS MDT
ASCENSION NO. 824

UPPER AIR DATA
0668003906
WHITE SANDS SITE

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

TABLE X (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
48500.0	135.7	-67.0	0.0	-0.00	229.3	559.0	257.1	48.8	1.000051	
49000.0	132.3	-67.8	0.0	-0.00	224.4	557.9	258.7	48.9	1.000050	
49500.0	128.9	-68.6	0.0	-0.00	219.7	556.8	260.7	48.0	1.000049	
50000.0	125.7	-69.4	0.0	-0.00	215.0	555.7	263.6	44.2	1.000048	
50500.0	122.6	-70.2	0.0	-0.00	210.5	554.6	266.5	40.4	1.000047	
51000.0	119.5	-71.1	0.0	-0.00	206.0	553.5	265.9	40.4	1.000046	
51500.0	116.5	-71.9	0.0	-0.00	201.7	552.4	264.9	40.9	1.000045	
52000.0	113.6	-71.6	0.0	-0.00	196.3	552.8	264.8	40.9	1.000044	
52500.0	110.7	-71.1	0.0	-0.00	190.9	553.5	265.5	40.4	1.000043	
53000.0	107.9	-70.6	0.0	-0.00	185.7	554.1	266.2	39.9	1.000041	
53500.0	105.2	-70.2	0.0	-0.00	180.6	554.8	264.5	39.2	1.000040	
54000.0	102.5	-69.7	0.0	-0.00	175.6	555.4	262.9	38.6	1.000039	
54500.0	100.0	-69.2	0.0	-0.00	170.8	556.1	264.5	36.1	1.000038	
55000.0	97.4	-69.6	0.0	-0.00	166.8	555.5	269.4	32.0	1.000037	
55500.0	95.0	-70.0	0.0	-0.00	162.9	555.0	274.3	27.8	1.000036	
56000.0	92.6	-70.4	0.0	-0.00	159.1	554.5	279.2	24.0	1.000035	
56500.0	90.2	-70.7	0.0	-0.00	155.3	554.0	284.1	20.2	1.000035	
57000.0	88.0	-71.1	0.0	-0.00	151.7	553.4	288.6	17.7	1.000034	
57500.0	85.8	-71.5	0.0	-0.00	148.2	552.9	292.3	17.9	1.000033	
58000.0	83.6	-71.9	0.0	-0.00	144.7	552.4	295.9	18.0	1.000032	
58500.0	81.5	-71.4	0.0	-0.00	140.7	553.1	288.8	21.2	1.000031	
59000.0	79.5	-70.5	0.0	-0.00	136.7	554.2	278.7	25.3	1.000030	
59500.0	77.5	-69.7	0.0	-0.00	132.7	555.4	279.1	26.5	1.000030	
60000.0	75.6	-68.8	0.0	-0.00	128.9	556.6	298.5	22.8	1.000029	
60500.0	73.7	-68.0	0.0	-0.00	125.2	557.7	318.0	19.1	1.000028	
61000.0	71.9	-67.1	0.0	-0.00	121.6	558.9	321.3	16.7	1.000027	
61500.0	70.1	-66.3	0.0	-0.00	118.1	560.0	324.5	14.3	1.000026	
62000.0	68.4	-65.5	0.0	-0.00	114.7	561.2	343.6	13.6	1.000026	
62500.0	66.7	-64.6	0.0	-0.00	111.4	562.3	12.2	13.8	1.000025	
63000.0	65.0	-63.8	0.0	-0.00	108.2	563.4	26.1	13.8	1.000024	

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
10 OCT. 68 0630 HRS MDT
ASCENSION NO. 824

UPPER AIR DATA
0668003906
WHITE SANDS SITE

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

TABLE X (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DIRECTION DEGREES(TN)	WIND DATA		INDEX OF REFRACTION
		AIR DEGREES CENTIGRADE	DEWPOINT CENTIGRADE			KNOTS	KNOTS		SPEED KNOTS		
63500.0	63.4	-62.9	0.	-0. **	105.1	564.6		321.1	12.6		1.000023
64000.0	61.9	-62.4	0.	-0. **	102.3	565.2		256.2	11.5		1.000023
64500.0	60.4	-62.1	0.	-0. **	99.7	565.7		226.8	11.6		1.000022
65000.0	59.0	-61.7	0.	-0. **	97.1	566.2		228.7	12.8		1.000022
65500.0	57.5	-61.4	0.	-0. **	94.7	566.6		230.7	14.0		1.000021
66000.0	56.2	-61.0	0.	-0. **	92.3	567.1		235.1	15.1		1.000021
66500.0	54.8	-60.7	0.	-0. **	89.9	567.6		239.9	16.2		1.000020
67000.0	53.5	-60.3	0.	-0. **	87.6	568.1		243.9	16.6		1.000020
67500.0	52.3	-60.0	0.	-0. **	85.4	568.5		242.6	13.6		1.000019
68000.0	51.0	-59.6	0.	-0. **	83.2	569.0		241.3	10.5		1.000019
68500.0	49.8	-59.3	0.	-0. **	81.1	569.5		239.3	8.7		1.000018
69000.0	48.6	-58.9	0.	-0. **	79.0	569.9		236.3	8.5		1.000018
69500.0	47.4	-58.5	0.	-0. **	77.0	570.4		233.3	8.3		1.000017
70000.0	46.3	-58.2	0.	-0. **	75.1	570.9		205.4	6.5		1.000017
70500.0	45.2	-57.8	0.	-0. **	73.2	571.4		170.4	4.2		1.000016
71000.0	44.1	-57.5	0.	-0. **	71.3	571.8		140.0	2.2		1.000016
71500.0	43.1	-57.1	0.	-0. **	69.5	572.3		145.9	2.6		1.000015
72000.0	42.1	-56.8	0.	-0. **	67.7	572.8		151.8	2.9		1.000015
72500.0	41.1	-56.4	0.	-0. **	66.0	573.2		149.6	3.7		1.000015
73000.0	40.1	-56.1	0.	-0. **	64.3	573.7		137.0	4.9		1.000014
73500.0	39.1	-55.7	0.	-0. **	62.7	574.2		124.4	6.1		1.000014
74000.0	38.2	-55.4	0.	-0. **	61.1	574.6		134.7	6.1		1.000014
74500.0	37.3	-55.0	0.	-0. **	59.5	575.1		152.2	5.7		1.000013
75000.0	36.4	-54.8	0.	-0. **	58.1	575.4		167.6	5.4		1.000013
75500.0	35.6	-54.6	0.	-0. **	56.7	575.7		131.1	6.0		1.000013
76000.0	34.8	-54.4	0.	-0. **	55.4	575.9		94.7	6.6		1.000012
76500.0	34.0	-54.2	0.	-0. **	54.1	576.2		66.2	7.0		1.000012
77000.0	33.2	-54.0	0.	-0. **	52.8	576.4		62.8	6.7		1.000012
77500.0	32.4	-53.8	0.	-0. **	51.5	576.7		59.3	6.4		1.000011
78000.0	31.7	-53.6	0.	-0. **	50.3	577.0		56.8	6.7		1.000011

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSI.
10 OCT. 68 0630 HRS MDT
ASCENSION NO. 824

UPPER AIR DATA
0668003906
WHITE SANDS SITE

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

TABLE X (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS	DIRECTION DEGREES(TN)	SPEED KNOTS	
78500.0	31.0	-53.4	0.	-0. **	49.1	577.2		55.7	7.8	1.000011
79000.0	30.3	-53.2	0.	-0. **	47.9	577.5		54.6	8.9	1.000011
79500.0	29.6	-53.0	0.	-0. **	46.8	577.7		66.2	8.4	1.000010
80000.0	28.9	-52.8	0.	-0. **	45.7	578.0		87.1	6.5	1.000010
80500.0	28.2	-52.6	0.	-0. **	44.6	578.2		108.1	4.7	1.000010
81000.0	27.6	-52.4	0.	-0. **	43.5	578.5		109.0	5.9	1.000010
81500.0	26.9	-52.2	0.	-0. **	42.5	578.7		102.8	8.0	1.000009
82000.0	26.3	-52.0	0.	-0. **	41.5	579.0		96.6	10.2	1.000009
82500.0	25.7	-51.9	0.	-0. **	40.5	579.2		97.3	12.4	1.000009
83000.0	25.1	-51.7	0.	-0. **	39.5	579.5		98.8	14.6	1.000009
83500.0	24.6	-51.5	0.	-0. **	38.6	579.8		100.1	16.5	1.000009
84000.0	24.0	-51.3	0.	-0. **	37.7	580.0		99.5	15.3	1.000008
84500.0	23.4	-51.1	0.	-0. **	36.8	580.3		99.0	14.2	1.000008
85000.0	22.9	-50.9	0.	-0. **	35.9	580.5		101.4	13.1	1.000008
85500.0	22.4	-50.7	0.	-0. **	35.1	580.8		112.8	12.4	1.000008
86000.0	21.9	-50.5	0.	-0. **	34.2	581.0		124.3	11.6	1.000008
86500.0	21.4	-50.3	0.	-0. **	33.4	581.3		137.3	11.7	1.000007
87000.0	20.9	-50.1	0.	-0. **	32.6	581.5		159.7	16.9	1.000007
87500.0	20.4	-49.9	0.	-0. **	31.8	581.8		182.0	22.2	1.000007
88000.0	19.9	-49.7	0.	-0. **	31.1	582.0		204.4	27.5	1.000007
88500.0	19.5	-49.5	0.	-0. **	30.3	582.3		199.0	25.2	1.000007
89000.0	19.0	-49.3	0.	-0. **	29.6	582.5		182.7	20.1	1.000007
89500.0	18.6	-49.1	0.	-0. **	28.9	582.8		166.4	15.0	1.000006
90000.0	18.2	-48.9	0.	-0. **	28.2	583.0		147.9	12.0	1.000006
90500.0	17.8	-48.7	0.	-0. **	27.6	583.3		122.0	16.4	1.000006
91000.0	17.3	-48.5	0.	-0. **	26.9	583.6		96.0	20.7	1.000006
91500.0	16.9	-48.4	0.	-0. **	26.3	583.8		70.1	25.0	1.000006
92000.0	16.6	-48.2	0.	-0. **	25.6	584.1		72.3	23.6	1.000006
92500.0	16.2	-48.0	0.	-0. **	25.0	584.3		84.5	20.1	1.000006
93000.0	15.8	-47.8	0.	-0. **	24.4	584.6		96.7	16.6	1.000005

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL

10 OCT. 68

ASCENSION NO. 824

UPPER AIR DATA

0668003906

WHITE SANDS SITE

WSTM SITE COORDINATES

E 488,580 FEET

N 185,045 FEET

0630 HRS MDT

TABLE X (Cont)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE		REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND		WIND DATA DIRECTION DEGREES(TN)	SPEED		INDEX OF REFRACTION
		AIR DEGREES	DEWPOINT CENTIGRADE			KNOTS	KNOTS		KNOTS	KNOTS	
93500.0	15.4	-47.6	0.	-0. **	23.9	584.8		112.7	13.5		1.000005
94000.0	15.1	-47.4	0.	-0. **	23.3	585.1		140.1	11.6		1.000005
94500.0	14.7	-47.2	0.	-0. **	22.7	585.3		167.5	9.8		1.000005
95000.0	14.4	-47.0	0.	-0. **	22.2	585.6		194.9	7.9		1.000005
95500.0	14.1	-46.8	0.	-0. **	21.7	585.8		196.1	8.7		1.000005
96000.0	13.8	-46.6	0.	-0. **	21.2	586.1		188.7	10.5		1.000005
96500.0	13.4	-46.4	0.	-0. **	20.7	586.3		181.3	12.2		1.000005
97000.0	13.1	-46.2	0.	-0. **	20.2	586.6		165.8	15.8		1.000004
97500.0	12.8	-46.0	0.	-0. **	19.7	586.8		127.7	24.7		1.000004
98000.0	12.5	-45.8	0.	-0. **	19.2	587.1		89.7	33.6		1.000004
98500.0	12.3	-45.6	0.	-0. **	18.8	587.4		51.6	42.5		1.000004
99000.0	12.0	-45.3	0.	-0. **	18.3	587.7		30.7	36.6		1.000004
99500.0	11.7	-45.1	0.	-0. **	17.9	588.0		16.3	24.9		1.000004
100000.0	11.5	-44.8	0.	-0. **	17.5	588.3		2.0	13.3		1.000004
100500.0	11.2	-44.6	0.	-0. **	17.1	588.7		346.4	3.7		1.000004
101000.0	11.0	-44.4	0.	-0. **	16.7	589.0		322.2	8.2		1.000004
101500.0	10.7	-44.1	0.	-0. **	16.3	589.3		298.1	12.8		1.000004
102000.0	10.5	-43.9	0.	-0. **	15.9	589.6		273.9	17.3		1.000004
102500.0	10.2	-43.6	0.	-0. **	15.6	589.9		258.4	20.8		1.000003
103000.0	10.0	-43.4	0.	-0. **	15.2	590.2		251.0	23.5		1.000003
103500.0	9.8	-43.1	0.	-0. **	14.8	590.6		243.5	26.1		1.000003
104000.0	9.6	-42.9	0.	-0. **	14.5	590.9		236.1	28.7		1.000003
104500.0	9.4	-42.6	0.	-0. **	14.2	591.2					1.000003
105000.0	9.2	-42.4	0.	-0. **	13.8	591.5					1.000003
105500.0	9.0	-42.1	0.	-0. **	13.5	591.8					1.000003
106000.0	8.8	-41.9	0.	-0. **	13.2	592.1					1.000003
106500.0	8.6	-41.6	0.	-0. **	12.9	592.4					1.000003
107000.0	8.4	-41.4	0.	-0. **	12.6	592.8					1.000003
107500.0	8.2	-41.2	0.	-0. **	12.3	593.1					1.000003
108000.0	8.0	-40.9	0.	-0. **	12.0	593.4					1.000003

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
 10 OCT. 68 0630 HRS MDT
 ASCENSION NO. 824

MANDATORY LEVELS
 0668003906
 WHITE SANDS SITE

WSTM SITE COORDINATES
 E 488,580 FEET
 N 185,045 FEET

TABLE XI

PRESSURE GEOPOTENTIAL		TEMPERATURE		REL. HUM. PERCENT	WIND DATA	
MILLIBARS	FEET	AIR DEGREES	DEWPOINT CENTIGRADE		DIRECTION DEGREES(TN)	SPEED KNOTS
850.0	5028.	13.3	5.3	58.	127.4	7.0
800.0	6697.	11.1	4.0	61.	167.2	9.1
750.0	8470.	12.3	1.1	46.	181.7	14.2
700.0	10360.	9.9	-4.1	37.	198.0	17.0
650.0	12365.	5.3	-8.3	37.	221.8	19.7
600.0	14489.	0.5	-21.8	17.	236.8	25.8
550.0	16771.	-2.1	-23.3	18.	230.8	21.5
500.0	19233.	-7.0	-27.4	18.	234.2	21.6
450.0	21901.	-12.4	-31.9	18.	237.3	27.2
400.0	24820.	-18.4	-37.0	18.	236.4	31.5
350.0	28045.	-25.5	-42.7	18.	240.8	37.6
300.0	31644.	-35.0	-49.0	23.	244.2	42.4
250.0	35736.	-44.2	-64.4	9.**	250.6	56.6
200.0	40524.	-55.4	0.	-0.**	252.6	62.1
175.0	43282.	-60.2	0.	-0.**	254.2	56.6
150.0	46394.	-66.0	0.	-0.**	254.1	52.9
125.0	50004.	-69.6	0.	-0.**	264.3	43.2
100.0	54346.	-69.2	0.	-0.**	264.4	36.3
80.0	58686.	-70.8	0.	-0.**	281.7	24.0
70.0	61312.	-66.3	0.	-0.**	324.5	14.3
60.0	64414.	-62.0	0.	-0.**	227.2	11.9
50.0	68137.	-59.3	0.	-0.**	240.1	8.8
40.0	72757.	-56.0	0.	-0.**	136.7	4.9
30.0	78805.	-53.1	0.	-0.**	54.4	9.2
25.0	82673.	-51.6	0.	-0.**	98.8	14.6
20.0	87443.	-49.7	0.	-0.**	195.9	25.5
15.0	93653.	-47.3	0.	-0.**	144.2	11.4
10.0	102525.	-43.3	0.	-0.**	250.5	23.6

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

RELEASE TIME (MDT)		SECOND-STAGE IMPACT DISPLACEMENT IN MIL'S DUE TO WIND										AZI- MUTH (DEG- REES)	THEORETICAL IMPACT FROM LAUNCHER (IN MILES)		
		15-216 FT		216-4000 FT		4000-69330 FT		TOTAL							
		RAWIN - SONDE	PIBAL	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W		RANGE	N-S	E-W
0330	0520		1 3S	0.8E	10.2S	3.8E	3.2S	30.6W	14.7S	26.0W	347.8	72.8	71.2N	15.5W	
0330	0530		2.9S	3.1E	10.2S	3.5E	3.2S	30.6W	16.3S	24.0W	349.0	70.9	69.6N	13.5W	
0330	0545		4.7S	6.6E	9.2S	6.9E	3.2S	30.6W	17.1S	17.1W	354.5	69.1	68.8N	6.6W	
0330	0610		3.3S	7.3E	9.1S	10.4E	3.2S	30.6W	15.6S	12.9W	358.0	70.3	70.3N	2.4W	
0330	0620		2.9S	9.2E	8.4S	12.8E	3.2S	30.6W	14.5S	8.6W	001.5	71.4	71.4N	1.9E	
0330	0630		5.5S	9.7E	12.2S	14.2E	3.2S	30.6W	20.9S	6.7W	003.3	65.1	65.0N	3.8E	
0630	0630		5.5S	9.7E	12.2S	14.2E	2.8S	32.5W	20.5S	8.6W	001.7	65.4	65.4N	1.9E	

AZI- MUTH (DEG- REES)	MILES FROM LAUNCHER		
	RANGE	N-S	E-W
LAUNCHER SETTING (ELEVATION 84.0 DEGREES QE)	87.2	85.9N	15.4E
NO WIND IMPACT	86.5	85.9N	10.5E
PREDICTED SECOND-STAGE IMPACT	70.0	69.9N	3.7W
SECOND-STAGE IMPACT, RADAR TRACK	84.4	81.2N	22.8E
PREDICTED BOOSTER IMPACT	1.5	1.1N	1.0E
ACTUAL BOOSTER IMPACT	N/A	N/A	N/A

TABLE XII. IMPACT PREDICTION DATA
NIKE-HYDAC STV, SR-076

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13. ABSTRACT Meteorological data gathered for the launching of Nike-Hydac STV, SR-076, are presented for the Space and Missile Systems Organization, Greenbelt, Maryland, and for ballistic studies. The data appear, along with calculated ballistic data, in tabular form.			

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